

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-16. (Withdrawn)

17-21. (Canceled)

22-44. (Withdrawn)

45-46. (Canceled)

47. (Previously amended) An isolated polypeptide monomer of a pH sensitive potassium channel, the monomer:

E (i) forming a potassium channel having a unit conductance of 80-120 pS and having increased potassium channel current amplitude above intracellular pH of 7.1, when the monomer is expressed in *Xenopus* oocyte; and

(ii) encoded by a nucleic acid that specifically binds under stringent hybridization conditions to the complement of a nucleic acid encoding an amino acid sequence of SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:16 or SEQ ID NO:18, wherein the hybridization reaction is incubated at 42°C in a buffer comprising 50% formamide, 5x SSC, and 1% SDS, and washed at 65°C in a buffer comprising 0.2x SSC and 0.1% SDS.

48. (Canceled)

49. (Previously added) An isolated monomer of claim 47, wherein the monomer has an amino acid sequence of SEQ ID NO:1, SEQ ID NO:16 or SEQ ID NO:18.

50. (Previously amended) An isolated monomer of claim 47, wherein the monomer has a molecular weight of about 126 kDa, which is calculated from amino acid sequence of the monomer.

51. (Previously added) An isolated monomer of claim 47, wherein the monomer is a subunit of a homomeric potassium channel.

52. (Previously amended) An isolated polypeptide monomer of a pH sensitive potassium channel, the monomer:

(i) forming a potassium channel having a unit conductance of 80-120 pS and having increased potassium channel current amplitude above intracellular pH of 7.1, when the monomer is expressed in *Xenopus* oocyte; and

E (ii) encoded by a nucleic acid that specifically binds under stringent hybridization conditions to the nucleic acid disclosed in SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:17 or SEQ ID NO:19, wherein the hybridization reaction is incubated at 37°C in a buffer comprising 40% formamide, 1M NaCl, and 1% SDS, and washed at 45°C in a buffer comprising 1x SSC.

53. (Canceled)

54. (Previously added) An isolated monomer of claim 52, wherein the monomer has an amino acid sequence of SEQ ID NO:1, SEQ ID NO:16 or SEQ ID NO:18.

55. (Previously amended) An isolated monomer of claim 52, wherein the monomer has a molecular weight of about 126 kDa, which is calculated from amino acid sequence of the monomer.

56. (Previously added) An isolated monomer of claim 52, wherein the monomer is a subunit of a homomeric potassium channel.